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Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
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Textile effect paint

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TEXTILE EFFECT PAINT

The present invention relates to an emulsion paint comprising one or more fillers at least partly consisting of spherical polymer particles. Such paints are particularly useful for obtaining paint films with a textile or velvet effect and a soft feel. The invention further relates to a method of coating a substrate, such as a wall, to obtain special textile effects.

US 5,498,670 in its Examples 2-5 discloses an emulsion paint with an acrylic binder and spherical particles of polyurethane. The spherical particles in this composition have a particle size of 95 micrometers. Particles of such size generally result in a cloudy effect, visually comparable to suede. However, the use of such particles results in a relatively rough feel.

It is the object of the invention to provide a paint composition which when applied shows a textile effect in a visual as well as in a tactile sense. A further object of the invention is to allow the creation of different effects, such as suede, linen, or cloth effects.

The object of the invention is achieved by an emulsion paint comprising a filler at least partly consisting of spherical polymer particles having an average particle size between 20 – 90 micrometers.

Preferably, 3 – 10% of the spherical particles has a particle size between 63 – 90 micrometers, while 25 – 40% of the spherical particles has a particle size between 40 – 63 micrometers.

The spherical particles can be made of any suitable polymer material, such as acrylic or vinyl polymers. However, polyurethane particles are preferred, particularly aliphatic polyurethane particles.

The specific density of the particles can for instance range between 0,8 - 1,5 g/cm^3, e.g. between 1,1 – 1,3 g/cm^3.

Preferably, the spherical particles are pre-pigmented. The particles can be pre-pigmented with any suitable organic or inorganic pigment, such as for instance titanium dioxide or carbon black. The pigment content of the particles can for example be between 3 – 40%, although higher or lower contents may also be used if so desired. Using titanium dioxide, good results were obtained with a pigment content of 12 – 15% by weight.

A particularly suitable example of a filler made of pre-pigmented aliphatic polyurethane particles is Decol® 40, which has an average particle size of about 40 micrometers, a density of 1,21 g/cm^3, and a content of titanium dioxide of 13,5% by weight.

The emulsion paint further comprises an emulsified binder and an aqueous carrier. Suitable binders are for example polymers obtained by homopolymerization or copolymerization of vinyl monomers or acrylic monomers, such as alkyl (meth)acrylates, styrene building blocks, and the like.

Although it is preferred to use the paint composition as a semi-opaque paint, resulting in semi-opaque dried paint films, the composition may optionally further comprise organic or inorganic pigments or further fillers. Also further paint additives can be used such as pigment dispersants, emulsifiers, surfactants, thickeners, thixotropic agents, and the like.

Preferably, the substrate is first coated with a primer, preferably in two or more layers, although a single layer may also be used if so desired. The primer can for instance be a water-borne emulsion paint. As in the case of the paint composition described above, this primer can for instance be an emulsion of a vinyl or acrylic polymer, such as a styrene acrylic copolymer. A commercially

available example of such an emulsion is HydroPliolite® available from Eliokem, at 9% volume solids in the emulsion paint.

The primer can also comprise pigments, such as titanium dioxide, talc, calcium carbonate or mica pigments. Preferably, the colour of the primer should be in accordance with the colour of the paint layer with the spherical particles.

The primer can also comprise a thickener, such as for instance a cellulose or polyurethane compound. If so desired, further paint additives like xylan may also be used.

Optimum effects are obtained using an opaque primer in combination with a semi-opaque paint as described above.

The primer can be applied, e.g., by means of a brush or a roller. Medium hair rollers give the best results for this system.

After the primer is applied in one or, as preferred, two or more layers, it is dried. Preferably after 12 hours or more, the paint comprising the spherical particles as described above can be applied. Preferably, also this top paint is applied in two or more layers, although one layer may also be used if so desired.

A special textile, linen effect can be obtained if the top paint, comprising the spherical particles as described above, is applied, e.g. by means of a medium hair roller or other suitable means, in two or more layers, and subsequently a mattress of a fibrous material, preferably of stiff parallel projecting fibres such as synthetic grass fibres, is dragged over the fresh paint layer.

Alternatively, the top paint can be applied by brush, preferably of medium size, in cross way. This gives a cloudy, suede-like effect.

The invention is further illustrated by the following examples.

Example 1

A primer was used based on an aqueous emulsion of a styrene acrylate binder (Hydropliolite®, available from Eliokem) and comprising inorganic pigments, such as titanium dioixide, talc, calcium carbonate or mica pigments.

Two layers of the primer were applied using a medium hair roller. The layers were dried for 12 hours.

Subsequently, a semi-opaque top coat was used based on an aqueous emulsion of a styrene acrylate copolymer (11% solids) and 18% by weight of spherical aliphatic polyurethane particles which were pre-pigmented with titanium dioixide (13,5% by weight based on the total weight of polyurethane particles). These particles are available under the brand name Decol® 40.

Two layers of the top coat were applied by brush on the dried primer layers in cross way. After drying, the paint layer had a soft and suede-like touch as well as a suede look.

Example 2

A primer was applied as in Example 1. The same top coat was used, except that this time it was applied by a medium hair roller, again in two layers. Subsequently a tool was used comprising a blade having a flat side provided with stiff parallel synthetic fibres, similar to synthetic grass. This fibrous flat side of the tool was dragged over the freshly applied top coat layers in two directions. A textile, linen effect was the result.

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CLAIMS

1. Emulsion paint composition comprising a filler at least partly consisting of spherical polymer particles having an average particle size between 20 – 90 micrometers.

2. Paint composition according to claim 1, characterized in that 3 – 10% of the spherical particles has a particle size between 63 – 90 micrometers and 25 – 40% of the spherical particles has a particle size between 40 – 63 micrometers.

3. Paint composition according to claim 1 or claim 2, characterized in that at least a part of the spherical particles are polyurethane particles, preferably aliphatic polyurethane particles.

4. Paint composition according to any one of the preceding claims, characterized in that the specific density of the particles is between 0,8 - 1,5 g/cm^3, e.g. between 1,1 – 1,3 g/cm^3.

5. Paint composition according to any one of the preceding claims, characterized in that the spherical particles are pre-pigmented.

6. Paint composition according to any one of the preceding claims, characterized in that the composition comprises a styrene acrylic binder.

7. Paint composition according to any one of the preceding claims, characterized in that the paint is a semi-opaque paint.

8. Method of coating a substrate using a top coat having a composition according to any one of the preceding claims, characterized in that before applying the top coat the substrate is first coated with an aqueous acrylic primer and subsequently dried.

9. Method according to claim 8, characterized in that an opaque primer is used in combination with a semi-opaque top coat.

10. Method according to claim 8 or 9, characterized in that the top coat and the primer are of a corresponding colour.

11. Method according to claim 8, 9, or 10, characterized in that the top coat is applied by brush in cross way fashion.

12. Method according to claim 8, 9, or 10, characterized in that the top coat is applied by roller and that subsequently a tool is used comprising a flat side provided with fibrous material, preferably of stiff parallel projecting fibres such as synthetic grass fibres, and in that the fibrous flat side is dragged over the fresh paint layer.

13. Substrate provided with a multi-layer effect coating comprising an opaque primer layer and a semi-opaque top coat applied over the primer layer, the top coat being a dried layer of a paint composition according to any one of claims 1 – 7.

ABSTRACT

Emulsion paint composition for obtaining special textile or suede effect comprising a filler at least partly consisting of pre-pigmented spherical aliphatic polyurethane particles particles. About 3 – 10% of the spherical particles has a particle size between 63 – 90 micrometers and 25 – 40% of the spherical particles has a particle size between 40 – 63 micrometers. Before applying the paint as a semi-opaque top coat the substrate is first coated with an opaque acrylic primer of a corresponding colour and subsequently dried. The top coat is applied by brush in cross way fashion to obtain a suede effect, or it can be applied by roller, while subsequently a tool is used comprising a flat side provided with stiff parallel projecting fibres such as synthetic grass fibres, which are dragged over the fresh paint layer to obtain a linen effect.